

**RELATIONSHIP BETWEEN FINANCIAL HEDGING STRATEGIES AND
FINANCIAL PERFORMANCE: A CASE STUDY OF KENYA AIRWAYS
LIMITED**

BY:

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DECLARATION

This research project is my original work and has not been presented for a degree or any other examination in any University.

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This research project has been submitted for examination with my approval as a University supervisor.

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DEDICATION

I dedicate the project to my family for their support and encouragement through out the period. Their love, care, encouragement and enthusiasm inspired me to achieve this goal. Praise be to God Almighty for making this goal possible.

ABSTRACT

Financial hedging is an important means of risk management. Financial hedging reduces a firm's systematic risk, encouraging firm-specific investment by stakeholders. Financial hedging also acts as a firm's incentives to manage risk through diversification and leads to increased firm-specific investment by stakeholders. When financial hedging products are available, the opportunity to hedge systematic risks using these products changes a firm's incentive to manage risk through diversification. Financial hedging reduces risks through trading financial instruments such as forward and futures contracts, swaps, and options.

The aim of this study was to establish the relationship between financial hedging strategies and financial impact (gain or loss) on Kenya Airways Limited. The study adopted descriptive study design. The study used both primary and secondary data from financial statements at Kenya Airways and interviews to financial managers. Data was analyzed using descriptive statistics (frequencies, percentage, mean and standard deviation) and regression analysis. Results were presented in form of tables, bar graphs and pie chart while explanation was done in prose.

The study findings revealed that Kenya Airways had adopted the financial hedging strategies in the financial management. These strategies include forward contract for currencies, money market operations for currencies, and forward exchange contract for interest and money market operations for interest. Financial hedging strategies at Kenya Airways have reduced financial risks such as commodity risk, interest rate risks and volatility risks. Financial hedging strategies have therefore led to reduction in financial loss and improved financial performance. The study also noted that the company can reduce the financial impact on profitability through adoption of hedging on all major expenses denominated in US dollar.

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ABBREVIATIONS

- A. ECB-European Central Bank
- B. FEC- Forward Exchange Contracts
- C. GARCH- Generalized Auto Regression Conditional Heteroskedasticity
- D. KLM- Koninklijke Luchtvaart Maatschappij
- E. KQ- Kenya Airways Limited
- F. MNC- Multi National Corporation
- G. OIS- Overnight interest rate swap
- H. USD- United State Dollar
- I. KES- Kenya shillings

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Financial hedging and corporate diversification are often considered substitutive means of risk management, implying that rapid development of financial hedging markets will yield less need for firms to manage risk through costly diversification (Albuquerque, 2007). Building on a stakeholder-based view of risk management, financial hedging and corporate diversification are more often complementary than substitutive. Financial hedging reduces a firm's systematic risk, encouraging firm-specific investment by stakeholders (Bowden and Zhu, 2006). Larger firm specific investment loads excessive idiosyncratic risk on the stakeholders, increasing the benefits of reducing idiosyncratic risk through diversification. Therefore, financial hedging can increase a firm's incentives to manage risk through diversification. Financial hedging reduces risks through trading financial instruments such as forward and futures contracts, swaps, and options. When financial hedging products are available, the opportunity to hedge systematic risks using these products changes a firm's incentive to manage risk through diversification. Financial hedging reduces the firm's systematic risk and leads to increased firm-specific investment by stakeholders (Wei, 1999). A higher level of firm-specific investment resulting from the reduction of the systematic risk loads greater firm risk, especially idiosyncratic risk, on the stakeholders. As a result, reducing the idiosyncratic risk through diversification becomes more valuable when hedging contracts are available to reduce the systematic risk. Firms' ability to use financial hedging instruments could increase their incentives to manage the idiosyncratic risk through diversification, implying that the range of conditions under which financial hedging and diversification are complementary is broader (Alayannis and Ofek, 2001).

In response to volatile commodity prices, firms have adopted financial hedging as an integral part of their commodity management strategies. Finance and economics research establishes that financial hedging is a risk management strategy that can add value to the firm (Stulz 1996,

Leland 1998, Tirole 2006) and empirically documents its wide use in practice (Guay and Kothari 2003, Berkman and Bradbury 1996, Graham and Rogers 2002).

Jensen and Meckling (1976) have challenged the Miller and Modigliani theory that financial hedging cannot increase the value of a firm (Modigliani and Miller 1958) over three decades ago by showing that the mismatch of objectives between the firm shareholders and its managers creates a link between the capital structure and production decisions of the firm. This mismatch of objectives between the firm's shareholders and managers is known as the principal-agent problem and the cost that the principal bears to induce the manager to act in the best interest of the firm is referred to as the agency cost. The importance of agency cost and the link between the agency cost and the corporate use of financial hedging has been repeatedly mentioned in the literature (Smith and Stulz 1985, DeMarzo and Duffie 1995, Tirole 2006). In particular, financial hedging can add value to the firm by reducing the agency cost in commodity procurement problem as follows: suppose that the commodity procurement decisions of the firm are made by risk-averse procurement managers. The compensation of such a manager includes a risk premium that depends on the amount of risk that this manager is exposed to. The firm can reduce this risk premium by using financial hedging. In turn, the procurement manager can exert effort to reduce the firm's total spend on commodities and this effort can also affect the value of the firm. The level of this effort chosen optimally by a risk averse procurement manager depends on the firm's profit, which includes the firm's financial performance. This is consistent with anecdotal evidence from industry literature. The importance of hedging has been demonstrated in an empirical study by Donnelly (2005) in which aggressive hedging strategies helped Southwest Airlines Co. decrease its fuel expenses by \$455 million in 2004, which led to an annual profit of \$313 million when the airline industry lost about \$4 billion in the same year because of high oil prices.

Moreover, the use of financial hedging seems to be increasing over the years. According to a study by Greenwich Associates, large companies from the U.S., Europe, and Asia have hedged 55% of their energy commodities exposure in the year 2008 as opposed to 45% in the year 2007 (The Economist 2009).

1.1.1 Kenya Airways Limited

Kenya Airways Limited was formed in 1977 after disbandment of jointly owned East African Airways. The Airline operated as a Government owned establishment until 1986 when the Government made its first move towards privatization. The reform of Kenya Airways since 1991 illustrates a particular form of sequencing. As the timeline indicates, the appointment of Philip Ndegwa as Chairman of Kenya Airways in 1991 signaled the start of an effort to restructure Kenya Airways operations. New initiatives included bringing in outsiders as Managing Director and Chief Financial Officer, redefining middle level managerial jobs and reducing over-all employment costs, a review and reduction of capital expenditures, and instituting a new program of employee training with an emphasis on customer service and total quality management. In addition, a debt restructuring program was negotiated with the government. This debt restructuring package was necessary to make Kenya Airways a solvent company that could attract private investors.

Privatization of Kenya Airways came after the significant operational and financial restructuring outlined above. The final agreements with creditors under debt restructuring package were signed in July 1995, over four years after Kenya Airways operational restructuring began. Once conditions were propitious, privatization was carried out relatively rapidly: by June 1996, Kenya Airways had a strategic partner KLM with a major ownership stake of 26%, additional foreign and domestic portfolio investors, and over 100,000 individual domestic shareholders. The share of state ownership was reduced to 23%. Presently Kenya Airways offer flight to various destinations in the world and is among the leading airlines in the world. The company has also joined various strategic alliances with major airlines in the world that have helped in improving its network and passenger connectivity.

Kenya Airways operates in over 55 destinations in the world. The company prepares accounts in Kenya Shilling as the main currency. However most of the revenues are US dollar dominated. Other major currencies include Euro, Great Britain Pound and South African Rand. Ticket sales in most of the African countries are dominated in the respective country main currency hence exposure to foreign exchange risks. There are also risks associated with transfer and repatriation of funds from all global locations to the main account in head office. The company can also

encounter financial loss as a result of devaluation of local currency for instance the case of Zimbabwe and Mozambique among others. Due to lack of financial liberalization in most African countries the company could also be exposed to repatriation risks where it is impossible to transfer funds from the foreign location. All these challenges pose a likely financial loss if not addressed through proper financial management.

1.1.2 Financial Impact of Hedging Strategies

Kenya Airways has expenses, revenues and cash flows denominated in foreign currencies. The value of a firm's cash inflows received in various currencies is affected by the respective exchange rates of these currencies when they are converted typically into the home currency. Similarly, the value of a firm's cash outflows in various currencies will be dependent on the respective exchange rates of these currencies. Kenya Airways is therefore impacted by transaction exposure that is the degree to which the values of future cash transactions are affected by exchange rate fluctuations. Transaction exposure can have a substantial impact on a firm's earnings. It is not unusual for a currency to change by as much as 10% in a given year. If an exporter denominates its exports in a foreign currency, a 10% decline in that currency will reduce the dollar value of its receivables by 10%. This effect could possibly eliminate any profits from exporting. Kenya Airways will therefore need to estimate its net cash flows in each currency and measure the potential impact of the currency exposure.

The net cash flows can be viewed as streams of cash flows in differing currencies. Their value converted into the Kenya Shilling will vary due to both business risk and exchange rate risk. The currency values over time are bound to be correlated to some degree. If there is inflation in UK, for instance, the pound will depreciate against all currencies, not just one currency. Business risk may also be correlated between different countries; recession can also affect economic areas made up of many countries. A company needs to be able to assess its overall exposure to exchange rate variation.

Financial hedging can also help a company deal with translation exposure. Kenya Airways is likely to be impacted on translation of each subsidiary's or branch financial data to its home currency for consolidated financial reporting. Translation exposure does not directly affect cash

flows, but some firms are concerned about it because of its potential impact on reported consolidated earnings. A company may attempt to avoid translation exposure by matching its foreign liabilities with its foreign assets. This exposure is related to the need international companies like KQ to report their global operations on a consolidated basis. When exchange rates change, the value of foreign currency change when they are viewed from the perspective of the parent firm, consequently, there must be a mechanical means for handling the consolidation process for MNC that logically deals with exchange rate changes. In this regard and in context to the other exposure concepts, translation exposure is accounting oriented and therefore will be subjected to accounting definition and measurement.

There is also potential impact of a weak or strong currency on financing costs. KQ invests in long term projects such as purchase/leasing of aircrafts over a period of time say fifteen years hence relies heavily on long term financing. Generally, long term projects take longer to generate funds and are more appropriately financed by investors who are prepared to deposit their funds for the longer term. Short term funding would need constant refinancing and this may have a negative impact on a project if funds are not available at a particular stage of the project. If the currency that was borrowed appreciates over time, a company will need more funds to cover the coupon or principal payments. This exchange rate movement increases the company's financing costs. Whereas appreciating currency increases the periodic outflow payments of the bond issuer, a depreciating currency will reduce the issuers outflow payments and therefore reduce its financing costs.

A company's long term financing decision affects its value. The parent's long term financing decisions determine how its long term operations are to be financed with debt, the maturity and other provisions on long term debts securities issued and the currency used to denominate the debt.

When a company uses debt financing, its cost of debt will be affected by the choice if the currency borrowed. While it may be convenient to conduct long term financing in the currency that matched the currency generated from operations, the disparity among interest rates of long term debt denominated in different currencies can motivate an MNC to consider financing with long term debt in different currencies. Since the parent's choice of the currency used to

denominate debt affects the cost of debt, it also affects its cost of capital and therefore affects its required rate of return on investments and its value.

Hedging reduces the volatility of cash flow and currency risk in a company (Glen and Jorion, 1993). If external financing costs are higher than internal financing, in the pursuit of the shareholders' value maximizing goal, it would be beneficial for the company's value to hedge (Froot et al., 1993).

Financial or currency hedging therefore can be used as a risk management tool to assist a company in maintaining steady profitability over time and avoiding the foreign exchange risk or translation exposure.

1.1.3 Review of Hedging Strategies

Kenya Airways uses over 50 different currencies due to the diversity of local and international business. This study will focus on strategies used to reduce foreign exchange exposure and translation exposures for the company. The strategies under review include foreign exchange contracts for currencies, foreign exchange contracts for interest, money market operations for currencies and money market operations for interest. These strategies will be reviewed against the major currencies in use by the company in order to determine any financial impact on performance of the airline.

In forward exchange contracts, the rate of exchange is fixed immediately for purchase or sale of a particular currency for another or for delivery at an agreed future date. The study will review how future contracts if any assist Kenya Airways to hedge against foreign exchange risk by comparing how expected future cash flows are locked to offset currency future positions that expire on the date of the cash flows.

The strategies on money market operations will also assist in review of applicable hedges on interest rates payable on future long term borrowings or commitments such as lease of aircrafts.

1.2 Problem Statement

It is a fundamental insight that, under uncertainty, risk-averse decision-makers will prefer stable income and consumption streams to highly variable ones. Following the analysis of risk

management (Stulz (1984), Smith and Stulz (1985) and Froot et al (1993)), informational asymmetries create incentives for corporate risk management strategies based on the firm's cash flow. Under the assumption of risk aversion, a decision maker's utility will therefore be higher, given that he is able to stabilize income or consumption streams. Hedging, by enabling agents to increase expected utility via consumption smoothing, is hence a well-defined strategy for risk-averse decision-makers Smith and Stulz (1985), for instance, base their explanation of risk-averse firm behavior on three fundamental reasons: convex tax schedules, managerial risk aversion and bankruptcy costs. Hedging helps to raise after-tax firm values by reducing the variability of the pre-tax value. Hedging also helps to lower the probability that a firm will go bankrupt. In the presence of positive bankruptcy costs, hedging will thus benefit stockholders and creditors by reducing the expected future costs incurred in case of bankruptcy.

Previous studies in Kenya have not focused on financial hedging strategies adopted by Kenyan firms to prevent potential financial loss, for example, Mwangi (2003) conducted a survey of hedging practices against interest risk of commercial banks in Kenya and Muthinja (2008) carried out a survey of the hedging strategies used by Kenyan firms in managing transaction risk exposure in international trade. This study therefore sought to establish the relationship between financial hedging strategies and financial impact (gain or loss) to Kenya Airways Limited. To achieve this objective the study answered the following questions: Which financial hedging strategies have been adopted by Kenya Airways? How do financial hedging strategies adopted by Kenya Airways prevent potential financial loss? How do financial hedging strategies adopted by Kenya Airways lead to financial gain?

1.3 Objective of the study

To establish the relationship between financial hedging strategies and financial impact (gain or loss) on Kenya Airways Limited.

1.4 Significance of the Study

The findings of this study will be of great benefit to stakeholders in Kenya Airways and other companies because it will provide an insight into financial hedging strategies that prevent

potential financial losses. The findings will also be important in formulation of financial strategies within Kenya Airways.

The findings from this research were valuable to the government of Kenya who will use the finding to evaluate effectiveness financial hedging strategies aimed at prevent potential financial loss firms within the country. Information resulting from this research will form a basis of formulation of government policies on business management.

The findings of the study will contribute to the existing literature on financial hedging. This will benefit researchers and academicians by becoming a reference during future studies on financial hedging.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on the financial hedging strategies considered relevant and necessary to facilitate a comprehensive analysis and understanding of the research question. This is followed by a theoretical and empirical review of existing and previous studies in this area. The chapter will focus on various financial hedging strategies that have been applied by multinational corporations in order to manage foreign exchange exposures. There will be an analysis of various theories on hedging strategies including the pros and cons of each strategy. The models under discussion will include financial theory, agency theory, stakeholder theory and new institutional economics followed by detailed analysis of financial hedging models. The chapter will then review the mathematical modeling techniques used by financial hedging strategies in order to mitigate against risk and the reasons and benefits for risk management.

With the advent of globalization, multinationals as well as domestic firms have been experiencing increasing volatility of both current and future cash flows (Bartov et al. 1996). Such volatility is referred to as foreign exchange rate exposure. (Shapiro 1996) define foreign exchange rate exposure as "a measure of the potential change in a firm's profitability, net cash flow, and market value because of a change in exchange rates". There are little or no theoretical arguments that foreign exchange exposures have negative consequences on the organization. It increases the cost of accessing capital markets, resulting to lower level of investment and consequently lower firm value. Minton et al (1999). Three measures of foreign exchange exposure can be broadly classified as follows. Shapiro (1996) broadly divides currency risk or exchange rate exposures in to the following categories of transaction exposure, translation exposure and economic exposures.

Transaction exposure arises as a result of companies or individual dealing with other companies or individual in other countries in which the underlying currencies are different. Translation

exposure arises from the translation of accounting data from branches of multinational companies or subsidiaries to the home company currency. If an individual owns share in such companies, they are therefore subject to translation exposure. Shapiro (1998) and many others writers states that translation exposure should not be managed, as it is purely an accounting matter. Economic exposure looks at how the underlying operations, strategy and company actions of a company affects future cash flows and profit figures. This is very important in the modern day economy of today where companies need to outperform competitors with better corporate deals, good strategies and innovative thinking and creativity. The above foreign exchange exposures impact on financial performance of companies by either increase profitability through exchange gains or contributing to losses through foreign exchange losses.

2.2 Theoretical Review

Many empirical studies have attempted to find support for different theories of corporate financial risk management. However, most of them have failed to determine which theories are supported by empirical observation of corporate hedging and which are not (Karol, 2008). Most valuable papers in recent years concentrated on methodological issues such as the endogeneity problem (Jin and Jorion, 2006), the inclusion of non-derivative hedging (Davies *et al.*, 2006), and assumptions about the purpose of derivative use (Faulkender, 2005). This focus on methodological issues indicates that researchers in the field of hedging still need strong empirical evidence. The following are corporate hedging models nested in four different theories of the firm: financial theory, agency theory, stakeholder theory and new institutional economics.

2.2.1 Financial Economics Approach

The financial economics approach to corporate risk management has so far been the most prolific in terms of both theoretical model extensions and empirical research. This approach builds on the classic paradigm by Miller and Modigliani (1958) which states conditions for irrelevance of financial structure for corporate value. The paradigm was later extended to the field of risk management. Rationales for hedging deduced from the irrelevance conditions include: higher debt capacity; progressive tax rates; lower expected costs of bankruptcy; securing internal financing; information asymmetries and comparative advantage in information (Stulz, 1996).

The ultimate result of hedging, if it indeed is beneficial to the firm, should be higher value – a hedging premium. Evidence in support of the predictions of financial economics theory for corporate hedging is poor. Although risk management does lead to lower variability of corporate value (Jin and Jorion, 2006), which is the main prerequisite for all other effects, there seems to be little proof of this being linked with benefits specified by the theory. One of the most widely cited papers by Tufano (1996) finds no evidence to support financial hypotheses, and concentrates on the influence of managerial preferences instead. On the other hand, the higher debt capacity hypothesis seems to be verified positively as shown by Faff and Nguyen (2002). The internal financing hypothesis was positively verified by Guay (1999), while it was rejected by Faff and Nguyen (2002). Judge (2006) found evidence in support of the financial distress hypothesis. The tax hypothesis was verified positively by Nance et al. (1993), while other studies verified it negatively (Mian, 1996, Graham and Rogers, 2002). More recently, Jin and Jorion (2006) provided strong evidence of the lack of value relevance of hedging, although some previous studies have identified a hedging premium (Allayannis and Weston, 2001; Carter et al., 2006).

2.2.2 Agency Theory

Agency theory extends the analysis of the firm to include separation of ownership and control, as well as managerial motivation. In the field of corporate risk management, agency issues have been shown to influence managerial attitudes toward risk taking and hedging (Smith and Stulz, 1985). Agency theory also explains a possible mismatch of goals between shareholders, management and debt-holders caused by asymmetries in earnings distribution, which can result in the firm taking too much risk or not engaging in positive net value projects (Mayers and Smith, 1987).

Agency theory implies that defined hedging policies can have important influence on firm value (Fite and Pfleiderer, 1995). Managerial motivation factors which influence the implementation of hedging have been investigated empirically in a few studies to an overall negative effect (Faff and Nguyen, 2002; Geczy et al., 1997). Notably, positive evidence was found by Tufano (1996) in his analysis of the gold mining industry in the USA.

2.2.3 New Institutional Economics

New institutional economics theory is investigated empirically in the context of corporate hedging in this study for the first time. New institutional economics shifts the focus to governance processes and socio-economic institutions that guide these processes, as explained by Williamson (1998). Although no empirical studies of the new institutional economics approach to risk management have been carried out so far, this theory offers an alternative explanation of corporate behavior. Namely, it predicts that risk management practices may be determined by institutions or accepted practice within a market or industry.

In emerging markets, as managers and investors become more educated and institutions that support hedging develop, it can be expected that hedging will gain popularity with time. Moreover, the theory links security with specific assets purchase (Williamson, 1987). This implies that risk management can be important in contracts that bind two non-diversified parties, such as large financing contracts or close cooperation within a supply chain.

2.2.4 Stakeholder Theory

Stakeholder theory, originally developed by Freeman (1984) as a managerial instrument, has since evolved into a theory of the firm with high explanatory potential. Stakeholder theory focuses explicitly on equilibrium of stakeholder interests as the main determinant of corporate policy. The most promising contribution to risk management is the extension of implicit contracts theory (a part of stakeholder theory) from employment to other contracts, including sales and financing (Cornell and Shapiro, 1987).

In certain industries, particularly high-tech and services, consumers' trust in a company can substantially contribute to the company's value. The value of implicit claims is highly sensitive to expected costs of financial distress and bankruptcy. Since corporate risk management practices lead to a decrease in these expected costs, company value rises (Klimczak, 2005). The more sensitive a company's value is to financial distress, the higher the motivation for hedging. Nevertheless, stakeholder theory has not been tested directly yet. Investigations of the financial distress hypothesis provide only indirect evidence (Judge, 2006).

2.3 Financial Hedging Methods

2.3.1 Forward Exchange Contract

A forward exchange contract, commonly known as FEC or forward cover, is a contract between a bank and its customer whereby a rate of exchange is fixed immediately for the purchase (or sale) of one currency for another, or for delivery at an agreed future date (Standard Bank Group, 2004). FEC rates are based on interest differentials between the countries concerned, and are not predictions of what the rates of exchange will be in the future. Application for a forward contract must be made to any International Trade Services front office. As a forward contract represents a contingent liability, the branch manager who will apply the normal credit criteria when assessing the request must sanction it. Once the facility has been granted and limits set in place, the applicant will be required to complete a form.

Forward contracts include: fixed contract, partially optional contract and fully optional contract. In fixed contract, a specific delivery date is agreed upon. The delivery of the foreign currency at the rate fixed in the FEC will be made on the exact date (fixed date) specified in the contract. Partially optional contract is fixed during the first period (from opening to option start date) and then fully optional from option start date to due/maturity date. The delivery of the foreign currency at the forward contract rate can take place at any time during the optional period. In fully optional contract, the delivery of the foreign currency can take place at the forward contract rate at any time throughout the entire existence of the FEC (Standard Bank Group, 2004).

The advantages of FEC include: the ability to cater for a diverse type of commercial and financial transactions and both importers and exporters can make use of it; the company is protected against unfavorable exchange rate fluctuations; the exact value of the export and import order can be calculated on the day it is processed; and budgeting and costing are accurate. Disadvantages of FEC include: the inability to take advantage of preferential exchange rate movements once a company has covered a transaction with a forward foreign exchange contract; if an order is cancelled or there is any surplus amount outstanding on a forward exchange, it must be surrendered at the prevailing spot exchange rate, which can result in a financial loss; early deliveries, extensions, surrenders and cancellations during the fixed period of a forward

exchange contract are done on a swap basis causing additional administration (Standard Bank Group, 2004).

2.3.2 Money Market Operations

In the recent past, many central banks have increasingly focused on steering some short-term money market interest rates in their implementation of the monetary policy stance. For example, this is the case of the Federal Reserve in the United States, the European Central Bank (ECB) in the euro area, and the Bank of England in the United Kingdom. More broadly, central banks seem to increasingly attach greater value to stable day-to-day and even intraday money market conditions. With this aim, so-called corridor systems have been adopted in several currency areas for example, in Australia, Canada, the euro area, and New Zealand. More recently, the Bank of England has also adopted such a system (Bank of England 2005).

Manipulation is a potential issue in such money markets. An example is the corridor system. In a corridor system (Woodford 2003), the central bank stands ready to provide overnight liquidity in unlimited amounts, generally against collateral, at a rate somewhat above market rates, and stands ready to absorb liquidity overnight in unlimited amounts at a rate somewhat below market rates. By setting a corridor around the central bank target or policy rate, the range of variation of overnight interest rates will be bounded, on a day-to-day basis, by the rates on the standing lending and deposit facilities, allowing short-term market interest rates to be steered with limited volatility around the desired level. Furfine (2003) shows with a search model that the actual recourse of a lending facility may be less than suggested by the statistics of individual refinancing costs when the market attaches a stigma to its use, but also that the availability of a lending facility might reduce incentives for active participation in the interbank market. Perez and Rodriguez (2006) conclude that the introduction of a deposit facility may lead to a stabilization of market rates. This is because the deposit facility reduces the costs of running into a "lock-in" situation, in which reserve requirements are satisfied before the last day of the reserve maintenance period.

Movements of the market rates occur also at certain calendar dates such as the end of the quarter and the end of the year, when commercial banks manage their balance sheets more carefully, and

in connection with events that are perceived by the market to have a potential effect on financial stability (Elliott 1997). Further deviations of the market index from the middle of the corridor have been observed occasionally. The derivatives market provides the means to either hedge the risks of a change in short-term interest rates or to speculate on them. Among the most actively traded instruments in this market is the overnight interest rate swap (OIS) of various maturities, ranging from one week to two years. For instance, an institutional investor might speculate on the timing of an expected increase in policy rates using a swap contract with a maturity of one month. In contrast, a commercial bank that wishes to freeze refinancing conditions in the interbank market until the next main refinancing operation may prefer a swap with a maturity of only one week. In terms of payments streams, the OIS is an instrument that exchanges a fixed interest rate against an index of daily interbank rates. OIS have been known in the United States for quite some time as call money swaps. The swap is the more liquid instrument and involves less credit risk. For many market participants, it is much easier to realize a short-term interest rate position with swaps than with transactions in the deposit market (Pelham 2003).

2.4 Modeling Strategies for Financial Hedging

Some of the mathematical modeling techniques which financial hedging strategists employ in order to be successful at mitigating risk include Generalized Auto Regressive Conditional Heteroskedasticity (GARCH), Durbin-Watson Test and Omega Function. The models are discussed below.

2.4.1 Generalized Auto Regressive Conditional Heteroskedasticity (GARCH)

Generalized Auto Regressive Conditional Heteroskedasticity is a modeling technique that allows researchers to predict for variances. GARCH is a mechanism that includes past variances in the explanation of future variances (Garch Toolbox, 2006). GARCH is a time-series modeling device to measure heteroscedacity which is time related variance and this model is effective at predicting volatility in a given market. Volatility in the futures market is always associated with risk. GARCH methodology is very effective at examining and determining the nature of risk in the financial markets and certainly in the futures markets. GARCH models and techniques are particularly useful in commodities markets, for example, because commodity prices are subject

to excessive amounts of volatility in ways that other financial markets are not (Garch Toolbox, 2006).

Siddique and Harvey (1999) undertook a study of autoregressive conditional skewness which utilized GARCH techniques wherein they concluded that autoregressive models might be successful at modeling time series variations relative to asset pricing such as stock returns. Their use and application of GARCH models successfully modeled skewness in a given financial market and it has some application in the futures market. Predicting, managing, and leveraging the uncertainty in futures market is however vital if a comprehensive market strategy is going to be developed that enables an entity to efficiently control, or at least manage, the cost basis of its investments or operating expenses. GARCH techniques can be used to construct models that control, to some degree, conditional variances related to futures as well as spot market prices and allow better management of financial or commodities portfolios.

2.4.2 Durban-Watson Test

The Durban-Watson test is the standard method for predicting or measuring auto-correlation phenomena which are important in futures markets that are so critical to hedging strategies. Various techniques are used in the Durban-Watson test to correct for autocorrelation such as applying a parameter to address this factor in the data before regression is performed (Myers & Well, 2003). However, weighted regression lines often fail this test. The Durban-Watson test is effective in forecasting through its standard time series analysis when appropriate confidence levels have been established.

Additionally, the Durban-Watson test is just as effective at modeling predictive behavior of markets when beset by events that affect change in the time series such as sudden exchange rate fluctuations (Kim et al., 2001). This application of the Durbin-Watson test can be used to factor in risk for independent market variables such as interest rates or currency exchange rates by predicting the effect that certain scenarios might have on the particular industry being hedged both in terms of the relative spot markets and the futures markets.

2.4.3 Omega Function

The Omega function has several uses in mathematics but in hedging specific applications, its $f = \Omega(g)$ wherein f expresses constraints g in a given manner has some relevance to risk determination in both financial and commodities markets where hedging typically takes place. Shadwick et al., (2003) developed a working model to display cumulative distribution based on a financial application of the Omega function. In their model the left represent a financial instrument, in this case it could be any form of currency, commodity or otherwise, and the variable, $D = (a, b, \text{etc...})$ defines the domain of F .

These researchers manage risk according to the Omega function by determining a return level, $r = L$ in $(a, b, \text{etc...})$ which becomes their loss threshold (Shadwick et al., 2003). While their model is extensive, the application and relevance to managing risk within the financial markets relative to exchange rate risk is clear in that by determining loss thresholds in advance, certain limiters on purchase instruments can be predetermined. This work on the Omega function led to other extended research on Omega as it applies to financial instruments where original definition of Omega by Shadwick et al., was reworked by Kazemi et al., (2003) into a new model termed the Sharpe-Omega in which Threshold is subtracted from the quotient of Expected Return and Put Option Price.

These models are able to offer greater insight into the financial hedging strategies employed by both private and public firms in order to mitigate market and investment risks (Ari, 2011). These models indicate that a model specifically designed for and customized to each particular market and accounting not only for price fluctuations but also for market variables such as interest rates and exchange rates is plausible for every industry competitor that employs hedging strategies. These models have been successfully applied to daily returns volatility of futures markets. Their success proves that every hedging entity can adapt these models to develop a functional model that can accurately incorporate intervention related to exchange rate fluctuations into a futures volatility model that works to effectively hedge each entity's particular needs and constraints (Ari, 2011).

2.5 Reasons for Risk Management

Shareholders of a firm can generally manage risk more efficiently on their own than letting the firm manage the risk on their behalf. For systematic risk, shareholders can use asset allocation to achieve their desired risk level based on individual risk preferences; for idiosyncratic risk, shareholders can manage it at low cost by holding a diversified portfolio (Markowitz, 1959). Based on these theories, it seems that shareholders generally will not want the firm to engage in risk management activities. In reality, however, risk management is taken very seriously by corporate managers, and the use of financial hedging contracts by firms has consistently grown over the years (Bodnar *et al.*, 1999).

Researchers have identified several conditions under which the shareholders' ability to allocate assets and diversify their portfolios cannot substitute for risk management by the firm. Most of the rationales for risk management developed in the literature fall into one of the following three categories: alleviating financing costs (Froot *et al.*, 1994; Stulz, 1990); realizing tax benefits (Graham and Smith, 1999); reducing risk for less than fully diversified managers and or investors (Chatterjee *et al.*, 1999). Although still relatively underdeveloped, another stream of literature argues that firms may manage risk to protect firm-specific asset investments made by their non-financial stakeholders such as employees, suppliers and customers (Stulz, 2002).

While the first three categories reflect financial reasons for firm risk management, the last one (the stakeholder-based rationale) suggests that risk management has effects on stakeholders' investments in firm-specific (strategic) assets, which is often considered to be an important source of a firm's superior value and competitive advantage (Barney, 1991). Such a focus of risk management is of interest to a broad range of organizational researchers, including those in strategic management, organization theory, and human resources, as well as those in finance and economics.

Despite the benefits of firm-specific investment to the firm, stakeholders themselves are concerned with the risks associated with making such investments (Cornell and Shapiro, 1987). Generally speaking, the level of risk associated with stakeholders' firm-specific investments is a function of the firm's *total* risk since stakeholders cannot effectively diversify away the

idiosyncratic risk of their firm-specific investments. Thus, the willingness of stakeholders to make firm-specific investments is a function of a firm's total risk: when the risk is higher, the less firm-specific investment will be made. Thus, firms have incentives to engage in risk management activities such as financial hedging or diversification to reduce the firm's total risk and thus to induce their stakeholders to make more firm-specific investments.

2.6 The Benefits of Hedging

There are several reasons why firms may choose to hedge risks, and they can be broadly categorized into four groups. These benefits include: tax benefits, better investment decisions, elimination of distress costs and low costs of capital.

2.6.1 Tax Benefits

A firm that hedges against risk may receive tax benefits for doing so, relative to an otherwise similar firm that does not hedge against risk. There are two sources for these tax benefits. One flows from the smoothing of earnings that is a consequence of effective risk hedging; with risk hedging, earnings will be lower than they would have been without hedging, during periods where the risk does not manifest itself and higher in periods where there is risk exposure. To the extent that the income at higher levels gets taxed at higher rates, there will be tax savings over time to a firm with more level earnings. Since risk management can be used to smooth out income over time, it is possible for a firm with volatile income to pay less in taxes over time as a result of risk hedging. Graham and Smith (1999) estimate that about half of all U.S. firms face convex effective tax functions (where tax rates rise with income), about a quarter have linear tax functions (where tax rates do not change with income) and a quarter actually have concave tax functions (where tax rates decrease with income). The other potential tax benefit arises from the tax treatment of hedging expenses and benefits (Mains, B., 1983). At the risk of oversimplification, there will be a tax benefit to hedging if the cost of hedging is fully tax deductible but the benefits from insurance are not fully taxed.

2.6.2 Better investment decisions

In a perfect world, the managers of a firm would consider each investment opportunity based upon its expected cash flows and the risk that investment adds to the investors in the firm. (Treyner & Black 1976). They will not be swayed by risks that can be diversified away by these investors, substantial though these risks may be, and capital markets will stand ready to supply the funds needed to make these investments. In particular, there are two problems that affect investment decisions that can be traced to the difference between managerial and stockholder interests. Firms that are dependent upon new stock issues to fund investments will tend to under invest because they have to issue the new shares at a discount; the discount can be attributed to the fact that markets cannot distinguish between firms raising funds for good investments and those raising funds for poor investments easily and the problem is worse for risky companies. If firms are dependent upon bank debt for funding investments, it is also possible that these investments cannot be funded because access to loans is affected by firm-specific risks. Froot et al., (1994) generalize this argument by noting that the firms that hedge against risk are more likely to have stable operating cash flows and are thus less likely to face unexpected cash shortfalls. As a consequence, they are less dependent upon external financing and can stick with long-term capital investment plans and increase value. By allowing managers to hedge firm-specific risks, risk hedging may reduce the number of good investments that get rejected either because of managerial risk aversion or lack of access to capital.

2.6.3 Elimination of distress costs

Every business, no matter how large and healthy, faces the possibility of distress under sufficiently adverse circumstances. While bankruptcy can be the final cost of distress, the intermediate costs of being perceived to be in trouble are substantial as well. Customers may be reluctant to buy your products, suppliers will impose stricter terms and employees are likely to look for alternative employment, creating a death spiral from which it is difficult to recover (Shapiro & Titman 1985).

Given the large costs of bankruptcy, it is prudent for firms to protect themselves against risks that may cause distress by hedging against them. In general, these will be risks that are large relative to the size of the firm and its fixed commitments (such as interest expenses). While large firms with little debt can easily absorb the costs of exchange rate movements, smaller firms and firms with larger debt obligations may very well be pushed to their financial limits by the same risk (Smith & Stulz, 1985). Consequently, it makes sense for the latter to hedge against risk. The payoff from lower distress costs show up in value in one of two ways. In a conventional discounted cash flow valuation, the effect is likely to manifest itself as a lower cost of capital (through a lower cost of debt) and a higher value. In the adjusted present value approach, the expected bankruptcy costs will be reduced as a consequence of the hedging (Stulz, 1984). To the extent that the increase in value from reducing distress costs exceeds the cost of hedging, the value of the firm will increase.

2.6.4 Low costs of capital

Closely related to the reduced distress cost benefit is the tax advantage that accrues from additional debt capacity. Firms that perceive themselves as facing less distress costs are more likely to borrow more. As long as borrowing creates a tax benefit, this implies that a firm that hedges away large risks will borrow more money and have a lower cost of capital. The payoff will be a higher value for the business (Helwege, 1989). Leland, H., (1998), combined the investment and financing arguments in arguing that firms can increase value by hedging. Firms that pre-commit to hedging against risk can borrow more money and lower their costs of capital. Firms that buy property insurance (and thus hedge against real estate risk) borrow more money and have lower costs of debt than firms that do not (Miller & Chen 2003). Firms hedge by looking at firms that use derivatives and in response to convex tax functions but primarily to increase debt capacity. Moreover, firms with more debt are more likely to hedge and that hedging leads to higher leverage (Miller & Chen 2003).

2.7 The Aviation Industry

The World aviation industry is a very unique industry. It can be said as a service industry as it doesn't produce any physical product for its customers in exchange of the money they paid to the

airlines. It is also a capital intensive, high fixed costs and highly unstable demand industry (Aharoni 2002). The World airline industry shows a cyclical pattern in their financial results as a whole with a few up and down aggressively (Saeedipour *et al* 2004). Airlines are susceptible to crisis and facing inconsistent profitability because their fix cost is high while the demand is highly sensitive to other factors (Morrell 2001). Unfortunately, these factors are usually out of airline's control such as economic growth and regulations changes and there is very little that they can do to change the situation (Saeedipour *et al* 2004).

Lenoir (1998) concluded that air traffic growth fluctuates in the same direction with the GDP growth only that air traffic growth was more chaotic. In other words, economic conditions affect airline profitability and this effect was amplified in the airline industry. On the other hand, Chin and Tay (2001) used regression analysis to show that air traffic growth rates are positively associated with GDP growth rates for Asian airlines. Chin and Tay (2001) described the fluctuation of airline profitability through airline's investment decisions. Asian airlines usually place order for new aircraft while they are making good profit, or during the upturn of the circle. However, the aircraft will only deliver to the customer after 2 – 3 years after the order was placed, which the upturn of circles was ended and/or demand was low. Hence the delivery of new aircraft will result in over-capacity, lower load factor and depresses airline's profit. They concluded that Asian airlines should improve their forecasting techniques, capacity flexibility and responsiveness to the changing environment in order to survive and make money.

Besides, airlines operate in a relatively more complicated business environment due to its business nature. Shaw (1999) identified five major factors affecting the airline industry, namely political, economic, social, technological and environmental factors. Shaw called it all together as PESTE (Political, Economic, Social, Technology and Environmental) analysis. He explained how these factors play their role and form a complicated business environment in airline business.

Aviation industry is a highly capital intensive industry where a large amount of capital is required for its operation to begin. Various regulations restriction on ownership of airlines

prevents airlines from getting capital from various sources (Ng *et al* 2004). Such restriction are barring airline from getting capital injections that they needed for their service expansions and to gain from economies of scale. Yergin *et al* (2000) claimed that airline industry is lagging behind other industries in term of competitive and efficiency as a whole. To be as efficient as other industries, they believe that the world airline industry is facing a series of common problems, such as regulatory adjustment and risks, the scale and ownership, the role of national identity and the investment policy, the competitive pressures, the consolidation, the national security and the network economics. They claimed that a competitive airline industry with sufficient scale and scope is vital to achieve many benefits that can be gained from increased trade and economic integration in the new millennium.

2.8 Conceptual Model

A conceptual definition is an element of the scientific research process, in which a specific concept is defined as a measurable occurrence or in measurable terms; it basically gives one the meaning of the concept (Mugenda, 2008). Independent variables are those variables which are systematically varied by the researcher. On the other hand, dependent variables are those variables whose values are presumed to depend on the effects of the independent variables (Mugenda, 2008).

The independent variables for the study are forward exchange contract for currencies, money market operations for currencies, forward exchange contract for interest and money market operations for interest while the dependent variable is financial impact (gain or loss). The relationship between these variables is presented graphically in the conceptual framework shown in figure 2.0.

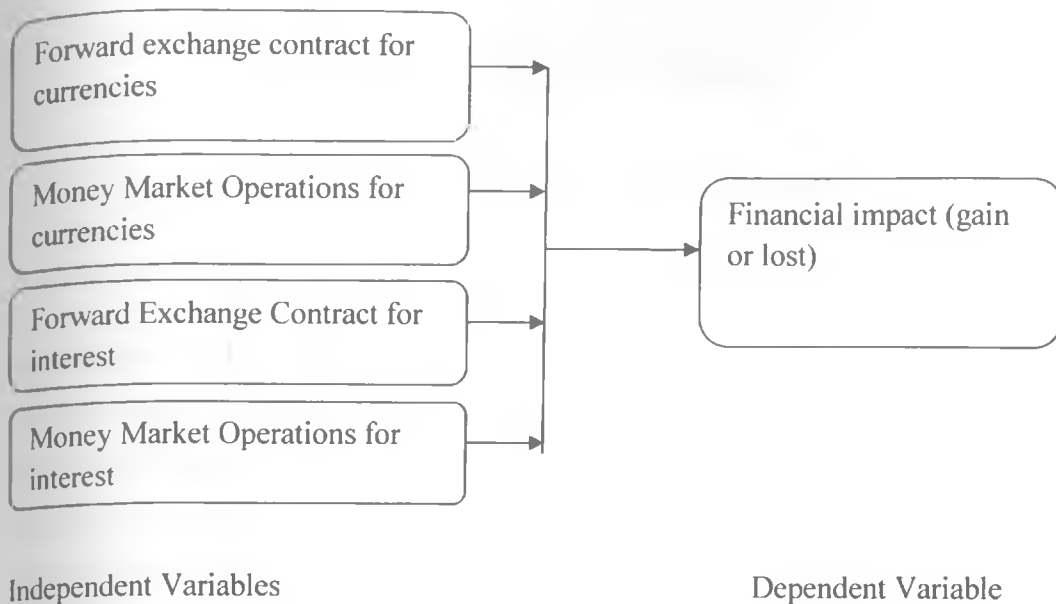


Figure 2.1: Conceptual Framework

2.8. Summary

The chapter has presented theoretical and empirical literature on financial hedging. The reviewed empirical literature has discussed financial hedging methods which include forward exchange contract for currencies and interests and money market operations for currencies and interests. Moreover, the review has looked into modeling strategies for financial hedging which financial hedging strategists employ in order to be successful at mitigating risk. These models include GARCH, Durban-Watson Test and Omega Function. The models are considered appropriate in review of financial hedging strategies for Kenya Airways Limited in view of risk prediction that can be used to estimate impact on financial position.

The empirical review has also presented the reasons for risk management and the benefits of financial hedging such as tax benefits, better investment decisions, elimination of distress costs and low costs of capital.

Besides, the chapter has presented discussions on the aviation industry and an illustration of conceptual model for the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter sets out various stages and phases that were followed in determining whether there are any hedging strategies currently used by Kenya Airways and how the strategies if any, impact on financial performance (gain or loss) of the company. The following subsections are included; research design, target population, sampling design, data collection instruments, data collection procedures and concludes with data analysis.

3.1 Research Design

Babbie, (2002) defined research design as the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in the procedure. It is the relationship that exists between the independent and dependent variables. The proposed study adopted descriptive study aimed at investigating the relationship that exists among a number of variables. This will involve obtaining data from the participants and analyzing the impact of the information on financial statements of the company. The relationship between financial hedging strategies and financial impact (gain or loss) to Kenya Airways was analyzed from secondary data.

3.2 Target Population

This study targets Kenya Airways Limited. The respondents for the study were the manager Treasury responsible for implementing various currency hedging strategies, manager financial accounting involved in consolidation of accounts including revaluations of foreign currencies and Head of Financial control. Other finance manager that support the key respondents will also be interviewed for an understanding of the strategies.

3.3 Data Collection Method

The study employed analysis of primary and secondary data from financial statements and interviews to key finance staff. The data was collected through interactive sessions with the three managers in order to document the process and analysis of data from company financial statements for three years.

The reliability and validity of the data was ensured through a pilot study. Validity as noted by Saunders (2007) is the degree to which result obtained from the analysis of the data actually represents the phenomenon under study. Reliability on the other hand refers to a measure of the degree to which research instruments yield consistent results (Mugenda and Mugenda, 2003). The pilot study allowed for necessary adjustments to be made on the data collection sheet so that it can capture the required information. The results from the pilot study was, however not be included in the final analysis.

3.4 Data Analysis and Presentation

Descriptive statistics comprised the use of frequencies, percentage (relative frequency), mean and standard deviation. Quantitative data was presented in form of tables, bar graphs and pie chart, while explanation to the same will be presented in prose. Tables were used to present responses and facilitate comparison. Data analysis was used Statistical Package for Social Sciences SPSS and Microsoft Excel to generate quantitative reports through tabulations, percentages, and measures of central tendency.

Regression analysis was used to establish the relationship between financial hedging strategies and financial impact (gain or loss). The analysis of variance (ANOVA) was used to test for the significance of regression. This approach used the variance of the observed data to determine if a regression model can be applied to the observed data. The observed variance is partitioned into components that are then used in the test for significance of regression.

The following regression model will be used for the study.

$$Y = X_1b_1 + X_2b_2 + X_3b_3 + X_4b_4 \dots + e \text{ where}$$

Y = Financial impact (gain or loss)

X_1 = Forward exchange contract for currencies

X_2 = Money market operations for currencies

X_3 = Forward exchange contract for interest

X_4 = Money market operations for interest

b_1, b_2, b_3 and b_4 are regression coefficients

e = Standard error

The independent variables for the study were forward exchange contract for currencies, money market operations for currencies, forward exchange contract for interest and money market operations for interest while the dependent variable is financial impact (gain or loss). Since the gain or loss changed from one period to the other due to changes in exchange rates, there were no control variables in this study.

The impact of the above variables will be measured based on the changes in financial position from one period to another. The researcher has reviewed the impact of each variable on financial position in forming an opinion on the study.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter discusses the interpretation and presentation of the findings. The purpose of the study was to investigate the relationship between financial hedging strategies and financial impact (gain or loss) to Kenya Airways Limited. The specific objectives of this study were to establish financial hedging strategies that have been adopted by Kenya Airways, to determine how financial hedging strategies adopted by Kenya Airways prevent potential financial loss and to determine how financial hedging strategies adopted by Kenya Airways contribute to potential financial gains. This chapter focused on data analysis, interpretation and presentation. The researcher made use of frequency tables and percentages to present data.

4.2 General Information

In this section the researcher analyzed the financial statements for the last three years for evidence of currency hedging strategies and the impact on profitability of the company. The researcher also held discussions with key finance managers in the company to with a view to achieving the research objectives.

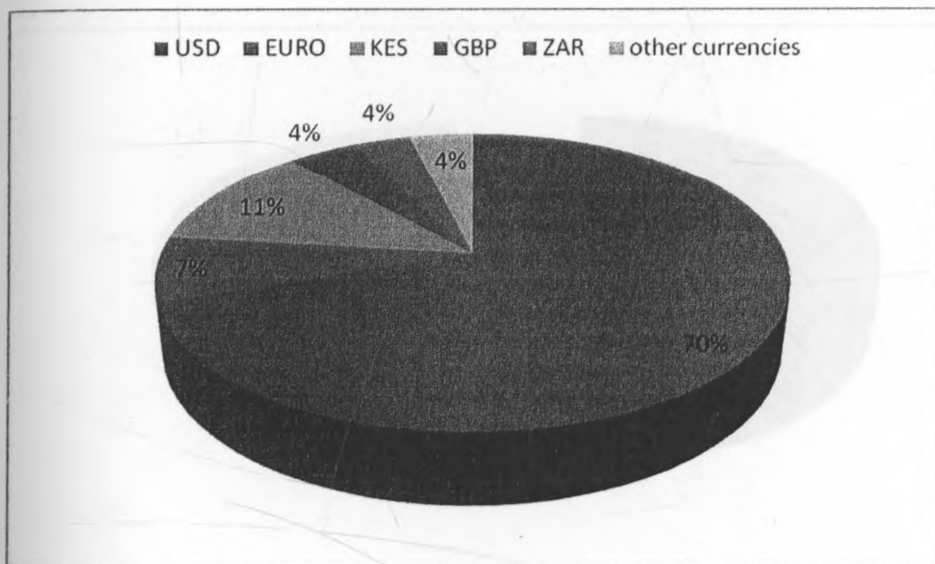
Based on review of financial statements for the last three years, there was evidence of existence of financial hedging practices by Kenya Airways. The company designates certain hedging instruments in respect of foreign currency risk and fuel price risk as cash flow hedges. There was also evidence of translation of transactions in currencies other than the Kenya Shilling at the rates of exchange prevailing on the dates of the transactions. The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges are recognized in other comprehensive income while the gain or loss relating to the ineffective portion is recognized immediately in profit or loss. The company also enters into a variety of derivative financial instruments to manage its exposure to fuel price risk and foreign exchange rate risk, including foreign exchange forward contracts.

Table 4.1: Financial Impact of Currency hedging

Year	(Loss)/Gain- million Kshs
2011	-2,021
2010	1,280
2009	-6,451

According to figure 4.1 above, the company realized losses in two years and a gain in one year arising from currency hedging strategies as recognized under other comprehensive income for the three years. The finding clearly shows that the company is impacted both positively and negatively by financial hedging strategies currently in place.

Figure 4.2: Major currencies



According to figure 4.2 above US dollar is the major currency of the company at above 70% of both income and expenses. This is followed by Kenya Shillings at 11%, Euro at 7% while the other currencies average at around 4%. For reporting purposes, all monetary items are converted to Kenya shilling at the rate ruling on the date of reporting. The findings shows that currency

hedging can be impacted by the above major five currencies based on the monetary balances at the specific dates of reporting.

The researcher established that the hedging instrument is designated as a hedge of KQ's USD denominated future revenue streams from ticket sales. This hedging position is determined as a function of KQ's aggregate USD denominated aircraft funding liabilities. However the hedging structure does not cover other expenses other US Dollar designated expenses.

4.3 Financial Hedging Strategies Adopted In Kenya Airways

In an effort to determine the financial strategies adopted by the Kenya Airways and establishing the causes of financial impact in Figure 1 above the researcher requested the respondents to indicate their opinion on whether their organization had enough measures to prevent financial losses.

Figure 4.3: Measures to prevent financial losses

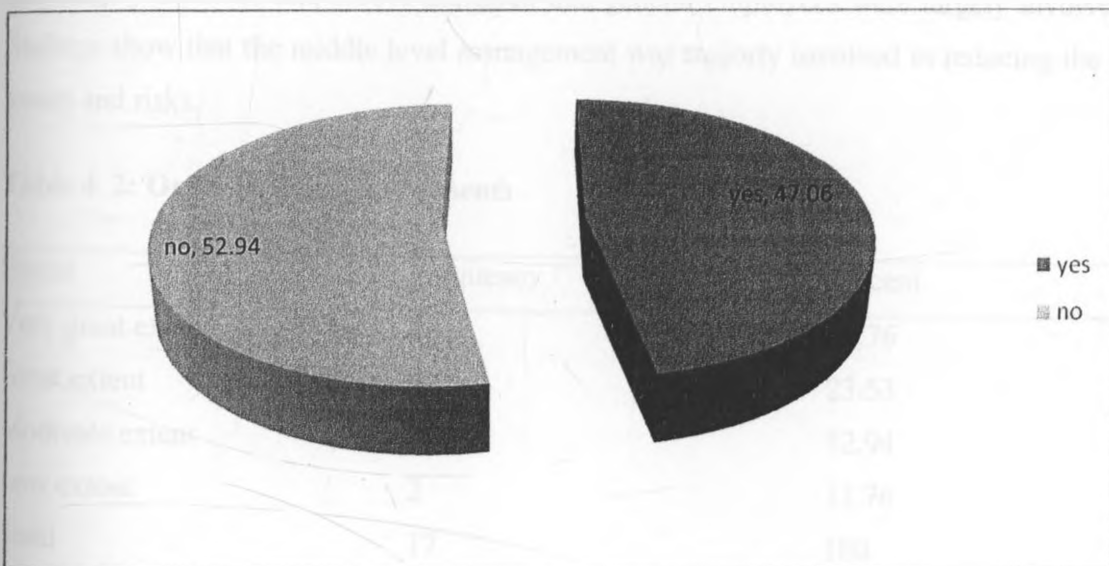


Figure 4.3 above shows the responses on whether Kenya Airways had enough measures to prevent financial losses. From the findings 52.94% of the respondents reported that Kenya Airways had not adopted enough measures to prevent financial losses. The rest of the respondents indicated that Kenya Airways had adopted enough measures to prevent financial

losses. From these findings we can conclude that Kenya Airways had not adopted enough measures to prevent financial losses.

Table 4. 1: Units of reducing financial losses and risks

Unit	Frequency	Percent
Top management	2	11.76
Middle level management	10	58.82
Low level management	4	23.53
General employees	1	5.88
Total	17	100

Table 4.1 above shows the units that are majorly involved in reducing the financial losses and risks. According to the findings 58.82% of the respondents indicated that the middle level management was largely involved in reducing the financial losses and risks, 23.53% indicated that the low level managers were largely involved, 11.76% indicated that the top management was largely involved and 5.88% indicated that general employees were largely involved. These findings show that the middle level management was majorly involved in reducing the financial losses and risks.

Table 4. 2: Organizational investments

Extent	Frequency	Percent
Very great extent	2	11.76
Great extent	4	23.53
Moderate extent	9	52.94
Low extent	2	11.76
Total	17	100

According to table 4.2 above, 52.94% of the respondents indicated that Kenya Airways had been involved in other investments apart from its core businesses to a moderate extent, 23.53% indicated to a great extent, 11.76% indicated to a very great extent and the same percent indicated to a low extent. From these findings we can deduce that Kenya Airways had been

involved in other investments apart from its core businesses to a moderate extent. The researcher also requested the respondents to indicate whether financial hedging is crucial in the normal operations of the Kenya Airways.

Figure 4.4: Financial hedging and normal operations

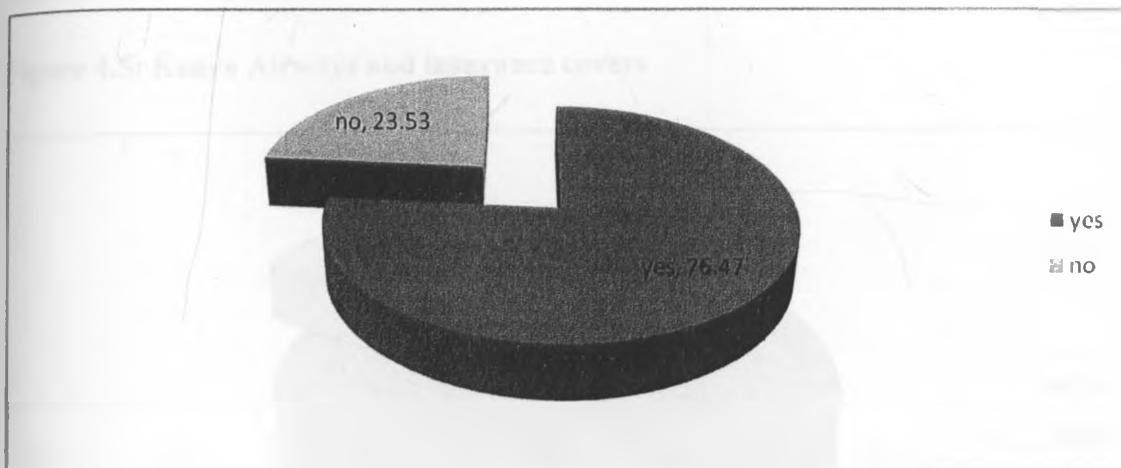


Figure 4.4 above shows the respondents opinions on whether financial hedging is crucial in the normal operations of the Kenya Airways. From the findings, 76.47% of the respondents indicated that financial hedging is crucial in the normal operations of the Kenya Airways while 23.53% of the respondents disagreed. These findings show that financial hedging is crucial in the normal operations of the Kenya Airways.

From the respondents who indicated that financial hedging is crucial in the normal operations of the Kenya Airways, the researcher also requested them to indicate their reasons.

Table 4.3: Financial hedging and normal operations

Reasons	Yes	No
It is a better way to operate in a fluctuating market demand	58.82	41.18
The organization has enough assets to make investments	64.71	35.29
Other airlines have adopted the same strategy and they have been successful	70.59	29.41

On the reasons they had on why financial hedging is crucial in the normal operations of the Kenya Airways, 58.82% of the respondents indicated that it is a better way to operate in a fluctuating market demand. Further, 64.71% of the respondents indicated that the organization has enough assets to make investments. Finally, 70.59% indicated that other airlines have adopted the same strategy and they have been successful.

Figure 4.5: Kenya Airways and insurance covers

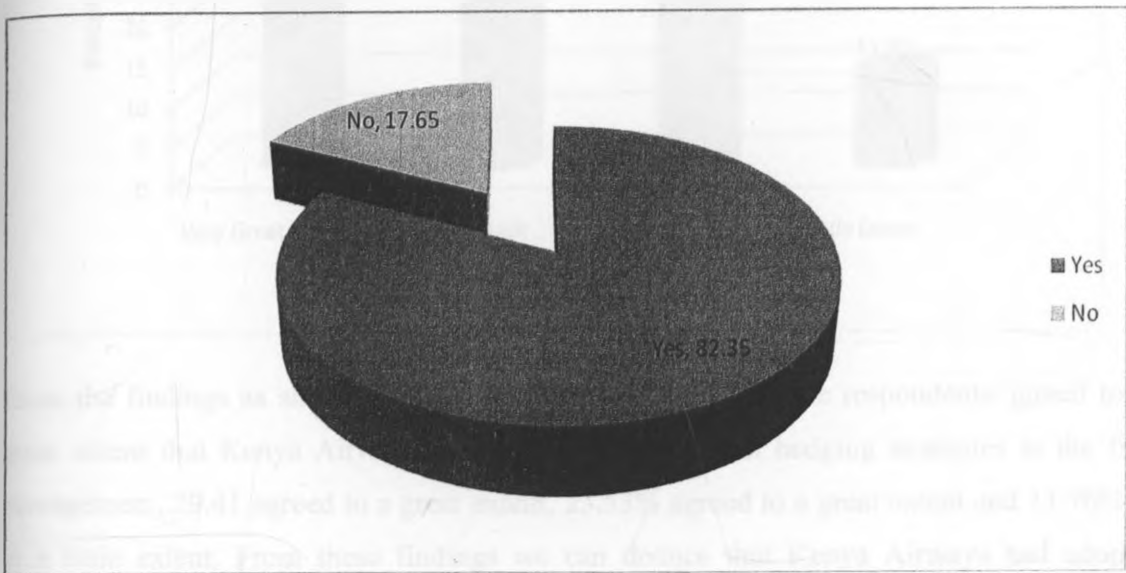


Figure 4.5 above shows the response on whether Kenya Airways involved insurance covers in their business. From the findings as shown by figure 4.6 above, 82.35% of the respondents indicated that Kenya Airways has insurance covers in their business while the rest of the respondents (17.65%) disagreed. From these findings we can deduce that Kenya Airways involved in insurance covers for the business.

4.4 Impact of Financial Hedging Strategies in Financial Control

In an effort to determine the impact of financial hedging strategies in financial control, the researcher requested the respondents to indicate the extent to which they thought Kenya Airways had adopted the financial hedging strategies in the financial management.

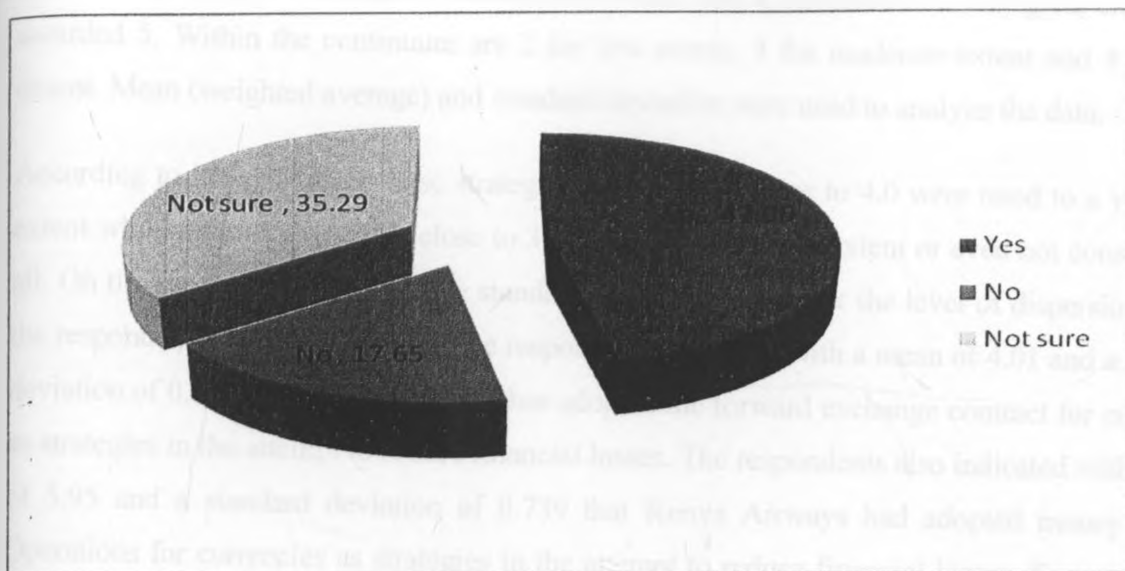
Figure 4.6: Kenya Airways had adopted the financial hedging strategies in the financial management



From the findings as shown by figure 4.6 above, 35.79% of the respondents agreed to a very great extent that Kenya Airways had adopted the financial hedging strategies in the financial management, 29.41 agreed to a great extent, 23.53% agreed to a great extent and 11.76% agreed to a little extent. From these findings we can deduce that Kenya Airways had adopted the financial hedging strategies in the financial management.

The study also sought to determine whether the performance of Kenya Airways had been influenced by the financial strategies which are adopted by the management.

Figure 4.7: Performance of Kenya Airways and financial strategies



From the findings 47.06% of the respondents indicated that the performance of Kenya Airways had been influenced by the financial strategies which are adopted by the management, 35.29% were not sure and 17.65% disagreed. From these findings we can conclude that the performance of Kenya Airways had been influenced by the financial strategies which are adopted by the management.

Table 4.4: Strategies adopted by Kenya Airways to reduce financial losses

Strategies	Mean	Std deviation
Forward exchange contract for currencies	4.01	0.687
Money Market Operations for currencies	3.95	0.739
Forward Exchange Contract for interest	3.93	0.837
Money Market Operations for interest	4.11	0.783

Table 4.4 above shows the findings on the extent to which the Kenya Airways had adopted the stated strategies in the attempt to reduce financial losses. A five point Likert scale was used to

interpret the respondent's responses. According to the scale, those strategies which were not considered at all were awarded 1 while those which were considered to a very great extent were awarded 5. Within the continuum are 2 for low extent, 3 for moderate extent and 4 for great extent. Mean (weighted average) and standard deviation were used to analyze the data.

According to the researcher those strategies with a mean close to 4.0 were rated to a very great extent while those with a mean close to 3.0 were rated to a low extent or even not considered at all. On the same note the higher the standard deviation the higher the level of dispersion among the respondents. From the findings the respondents indicated with a mean of 4.01 and a standard deviation of 0.687 that Kenya Airways has adopted the forward exchange contract for currencies as strategies in the attempt to reduce financial losses. The respondents also indicated with a mean of 3.95 and a standard deviation of 0.739 that Kenya Airways had adopted money Market Operations for currencies as strategies in the attempt to reduce financial losses. Kenya Airways had also adopted forward exchange contract for interest as strategies in the attempt to reduce financial losses. This was agreed to a great extent with a mean of 3.93 and a standard deviation of 0.837. Finally, the respondents agreed to a great extent with a mean of 4.11 and a standard deviation of 0.783 that Kenya Airways had adopted money market operations for interest as a strategy in the attempt to reduce financial losses.

Table 4. 5: Strategies adopted by Kenya Airways to enhance financial gains

Strategies	Mean	Std deviation
Forward exchange contract for currencies	3.89	0.967
Money Market Operations for currencies	3.78	0.736
Forward Exchange Contract for interest	3.56	0.754
Money Market Operations for interest	4.02	0.837

Table 4.5 above shows the extent to which the respondents agreed with the strategies adopted by Kenya Airways to enhance financial gains. From the findings the respondents agreed with a

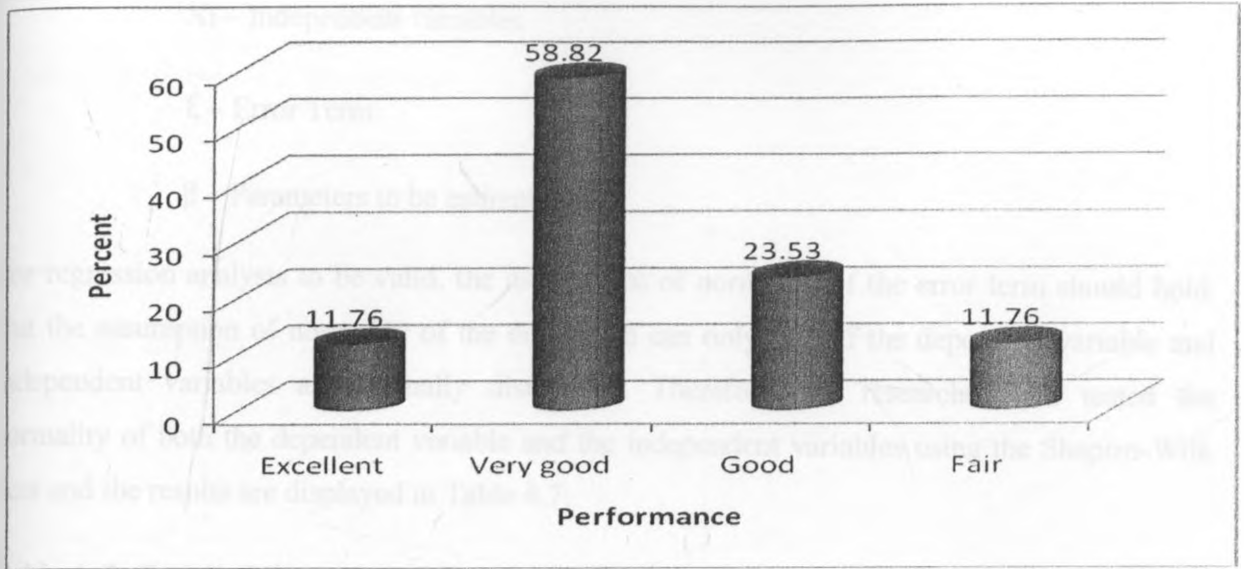
mean of 3.89 and a standard deviation of 0.967 that Kenya Airways had adopted forward exchange contract for currencies as a strategy for enhancing financial gains. Further, the respondents agreed with a mean of 3.78 and a standard deviation of 0.736 that Kenya Airways had adopted money market operations for currencies as a strategy to enhance its financial gains. The respondents also agreed with a mean of 3.56 and a standard deviation of 0.754 that Kenya Airways had adopted Forward Exchange Contract for interest as a strategy to enhance its financial gains. With a mean of 4.02 and a standard deviation of 0.837, the respondents agreed that Kenya Airways had adopted money market operations for interest as a strategy to enhance its financial gains.

Table 4. 6: Reduction of financial risks

Strategies	Mean	Std deviation
Commodity risk	3.89	0.827
Credit risks	2.48	0.728
Currency risks	2.42	0.736
Interest rate risks	4.11	0.637
Equity risks	2.78	0.938
Volatility risk	3.67	0.896

Table 4.6 above shows the extent to which the Kenya Airways had managed to tackle the stated financial risks that it is exposed to in the normal running of the business. From the findings the respondents indicated that Kenya Airways had managed to greatly reduce commodity risk (M=3.89, SD=0.827), interest rate risks (M=4.11, SD=0.637) and volatility risks (M=3.67, SD=0.896). The findings also show that Kenya Airways had managed to reduce credit risk (M=2.48, SD=0.728), currency risk (M=2.42, SD=0.736) and equity risk (M=2.78, SD=0.938) to a little extent.

Figure 4.8: Financial strategies that encourage high performance



Kenya Airways has attempted to adopt financial strategies which have encouraged high performance. From the findings as shown by figure 4.8 above, 58.82% rated the performance as very good, 23.53% rated it as good, 11.76% rated it as excellent and the same percent rated it as fair. From these findings we can deduce that the performance of Kenya Airways was very good after adopting financial strategies which had encouraged high performance.

4.5 Regression Analysis

Regression analysis is a statistical tool for the investigation of relationships between variables. Usually, the researcher seeks to ascertain the causal effect of one variable upon another. In this study the researcher used regression analysis to investigate the relationship which existed between the dependent variable (financial impact) and the independent variables (forward exchange contract for currencies, money market operations for currencies, and forward exchange contract for interest and money market operations for interest). Due to the fact that the researcher had more than one independent variable multiple linear regressions was used to model the relationship. The relationship which was modeled took the following structure:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$$

Where Y – dependent variable (financial impact)

X_i – Independent variables

ϵ – Error Term

β – Parameters to be estimated

For regression analysis to be valid, the assumption of normality of the error term should hold. But the assumption of normality of the error term can only hold if the dependent variable and independent variables are normally distributed. Therefore, the researcher first tested the normality of both the dependent variable and the independent variables using the Shapiro-Wilk Test and the results are displayed in Table 4.7:

Table 4. 7: Test for Normality

Variable	Shapiro Wilk Statistics	P - Value
Financial impact	0.972	0.309
Forward exchange contract for currencies	0.899	0.200
Money market operations for currencies	0.981	0.600
Forward exchange contract for interest	0.946	0.163
Money market operations for interest	0.977	0.443

$\alpha = 0.05$

According to Table 4.7, the study established that all the independent variables (forward exchange contract for currencies, money market operations for currencies, and forward exchange contract for interest and money market operations for interest) were normally distributed. This is because; in all the situations the p-value associated with the each variable was found to be greater than the level of significance (0.05). Further, the dependent variable was also found to be normally distributed since the p-value associated with the dependent variable was found to be greater than the level of significance (0.05). Therefore, since the study established that all the variables of interest were normally distributed, regression analysis was used to model the

relationship between the dependent variable and the independent variables. Table 4.8 presents the estimated parameters and their statistical test.

Table 4. 8: Estimated Parameters

Model	Estimated Parameter (SE)	P - Value	R – Square
Constant	2.54 (0.12)	0.01	0.756
Forward exchange contract for currencies	1.76 (0.11)	0.00	
Money market operations for currencies	2.61 (0.05)	0.02	
Forward exchange contract for interest	1.28 (0.23)	0.54	
Money market operations for interest	2.21 (0.09)	0.01	

$\alpha = 0.05$

The results in Table 4.8 show that the constant of regression was found to be 2.54 (± 0.12). This means that when all the other variables are held constant, the scores of financial gain will always be 2.54. Further, this constant of regression was found to be significant at 0.05 level of significance ($p=0.01$). In addition, the estimated parameter associated with forward exchange contract for currencies was found to be 1.76 (± 0.11). This means that, a unit increase in the scores of financial gain will increase the forward exchange contract for currencies by 1.76 units. This estimate of the parameter was also found to be significant at 0.05 level of significance ($p=0.00$). The study also established that the estimated parameter associated with money market operations for currencies was 2.61 (± 0.02). This meant that, a unit increase in the units of money market operations for currencies will lead to an increase in the score of financial gain by 2.61 units. This estimated parameter was also found to be statistically significant at 0.05 level of significance ($p=0.02$). Furthermore, the estimated parameter associated with forward exchange contract for interest was found to be 1.28 (± 0.23). However, this parameter was found to be

statistically insignificant ($p=0.54$). Further, the study established that the estimated parameter associated with the money market operations for interest was 2.21 (± 0.09). This parameter was also found to be significant at 0.05. In conclusion, the study has established that forward exchange contract for currencies, money market operations for currencies, and forward exchange contract for interest and money market operations for interest all have a positive impact on the financial gain. The coefficient of determination (R-square) was found to be 75.6% which means that the above independent variables accounts for 75.6 percent of the variation found in the dependent variable (Financial gain). The model takes the following form:

$$\hat{Y} = 2.54(\pm 0.12) + 1.76(0.11) X_1 + 2.61(0.05) X_2 + 1.28(0.23) X_3 + 2.21(0.09) X_4 + 1.99(0.18) X_5$$

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presented the discussion of key data findings, conclusion drawn from the findings highlighted and recommendation made there-to. The conclusions and recommendations drawn were focused on addressing the objective of the study which was to investigate the relationship between financial hedging strategies and financial impact (gain or loss) on company. The specific objectives of this study were to establish financial hedging strategies adopted by Kenya Airways, to determine how financial hedging strategies adopted by Kenya Airways prevent potential financial loss and to determine how financial hedging strategies adopted by Kenya Airways contribute to potential financial gains or losses over the period of study.

5.2 Discussion of the Findings

This study established that when all the other variables are held constant, the scores of financial gain will always be 2.54. A unit increase in the scores of forward exchange contract for currencies will increase the financial gain by 1.76 units. The study also established that the estimated parameter associated with money market operations for currencies was 2.61. This meant that, a unit increase in the units of money market operations for currencies will lead to an increase in the score of financial gains by 2.61 units. Furthermore, the estimated parameter associated with forward exchange contract for interest was found to be 1.28. Further, the study established that the estimated parameter associated with the money market operations for interest was 2.21.

5.2.1 Financial Hedging Strategies Adopted In Kenya Airways

In an effort to determine the financial strategies adopted by the Kenya Airways, the researcher requested the respondents to indicate their opinion on whether their organization had enough measures to prevent financial losses. From these findings the study found that Kenya Airways had not adopted enough measures to prevent financial losses. This study established that

financial hedging is crucial in the normal operations of the Kenya Airways because it is a better way to operate in a fluctuating market demand, the organization has enough assets to make investments and other airlines have adopted the same strategy and they have been successful. The study also found that Kenya Airways was involved insurance covers in their business.

5.2.2 Impacts of Financial Hedging Strategies in Financial Control

In an effort to determine the impact of financial hedging strategies in financial control, the researcher requested the respondents to indicate the extent to which they thought Kenya Airways had adopted the financial hedging strategies in the financial management. From the findings the study found that Kenya Airways had adopted the financial hedging strategies in the financial management. The performance of Kenya Airways had been influenced by the financial strategies which are adopted by the management.

On the extent to which the Kenya Airways had adopted the strategies in the attempt to reduce financial losses the study found that Kenya Airways had adopted the forward exchange contract for currencies as strategies in the attempt to reduce financial losses. The study also found that Kenya Airways had adopted money Market Operations for currencies, forward exchange contract for interest and money market operations for interest as a strategy in the attempt to reduce financial losses.

On the extent to which the respondents agreed with the strategies adopted by Kenya Airways to enhance financial gains the study found that Kenya Airways had adopted forward exchange contract for currencies, money market operations for currencies, Forward Exchange Contract for interest and money market operations for interest as a strategy to enhance its financial gains.

This study further established that Kenya Airways had managed to tackle the stated financial risks that it is exposed to in the normal running of the business. From the findings the study found that Kenya Airways had managed to greatly reduce commodity risk, interest rate risks and volatility risks. However, the company had not managed to reduce credit risk, currency risk and equity risk.

5.3 Conclusion

In conclusion, the study established that forward exchange contract for currencies, money market operations for currencies, and forward exchange contract for interest and money market operations for interest all have a positive impact on the financial gain. However these are applied to only selected expenses in the company. The company can further reduce financial impact if the hedging instruments are applied on all major expenses.

This study also concludes that Kenya Airways had not adopted enough measures to prevent financial losses. This study established that financial hedging is crucial in the normal operations of the Kenya Airways because it is a better way to operate in a fluctuating market demand, the organization has enough assets to make investments and other airlines have adopted the same strategy and they have been successful. The company only adopted the measure to fuel costs and aircraft loans dominated in US dollar. There are many other expense in USD that have not been considered hence need to include other measures to cover all expenses.

The study further concludes that Kenya Airways had adopted the financial hedging strategies in the financial management. To reduce financial losses and increase financial gains the study found that Kenya Airways had adopted the forward exchange contract for currencies, money Market Operations for currencies, forward exchange contract for interest and money market operations for interest as a strategy in the attempt to reduce financial losses. Kenya Airways had managed to tackle and reduce commodity risk, interest rate risks and volatility risks. However, the company had not managed to reduce credit risk, currency risk and equity risk.

5.4 Recommendations

This research study found that Kenya Airways has adopted hedging strategies for only USD expenses. Further study should be done on impact on hedging strategies on all major currencies.

The study also found out that a currency hedging was only applicable to aircraft loans costs. The company has other major expenses and further studies should be done on how these strategies can impact on all major expenses.

The study also found that Kenya Airways had managed to tackle and reduce commodity risk, interest rate risks and volatility risks but had not managed to reduce credit risk, currency risk and equity risk. The study therefore recommends that the company should form committees and entrust them with the responsibility of coming up with strategies that can be used to reduce commodity risk, interest rates risk and volatility risks.

This study revealed that the performance of Kenya Airways had been influenced by the financial strategies adopted by the company's management. The study therefore recommends that Kenya Airways should ensure that the team involved in the formulating and implementing financial strategies is skilled and experienced.

5.5 Suggestions for Further Studies

Based on research findings, Kenya Airways hedging policy only covers aircraft loan expenses denominated in USD. The researcher recommends analysis of financial impact on all major USD expenses to facilitate development of currency hedging policy.

Kenya Airways also has hedging policies for USD denominated expenses only. Further study should be done on hedging strategies for expenses in all other major currencies such as Euro, GBP and South African Rands. The analysis of impact of all other major currencies will enable the company to develop other hedging strategies for all currencies.

The researcher also noted that the company incurred both financial gains and losses out of hedging strategies in place. Further studies should be done on the root cause of the losses with a view to modifying the already existing hedging strategies.

From the study and related conclusions, the researcher recommends further research in the area of the financial factors affecting the performance of government parastatals in Kenya. The study also suggests further studies in the area of the role of financial hedging strategies in enhancing the performance of government parastatals in Kenya.

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APPENDIX I: Introductory Letter

RE: PARTICIPATION IN RESEARCH

I am a postgraduate student pursuing my master degree in Business Administration at the University of Nairobi and conducting a research entitled “An Analysis of Financial Hedging Strategies Adopted by Kenya Airways to Prevent Potential Financial Loss” as one of the major requirements.

In this regard, you have been selected to take part in this study as a respondent. Kindly respond to all items to reflect your opinion and experience. Please answer all the questions freely. You will not be identified from the information you provide and no information about individuals will be given to any organization. The data collected will be used for this academic research only.

Your participation is important for the success of this project and I greatly appreciate your contribution.

Yours Sincerely,

APPENDIX II: Interview Guide

1. Do you think that Kenya Airways has enough measures to prevent financial losses?
2. Which unit is majorly involved in reducing the financial losses and risks?
3. Is your organization involved into other investments apart from its core businesses?
4. Do you think financial hedging is crucial in the normal operations of the Kenya Airways?
5. Why do you think so in (3) above?
6. Does the organization involve insurance covers in the business?
7. Do you think Kenya Airways has adopted the financial hedging strategies in the financial management?
8. Do you think that the performance of Kenya Airways has been influenced by the financial strategies which are adopted by the management?
9. Do you think the Kenya Airways has adopted Forward exchange contract for currencies, Money Market Operations for currencies, Forward Exchange Contract for interest and money Market Operations for interest strategies in the attempt to reduce financial losses?
10. Kenya Airways has managed to tackle some the financial risks that it is exposed to in the normal running of the business. To what extent do you think that the commodity risk, credit risks, currency risks, interest rate risks, equity risks and volatility risks have been reduced?
11. Kenya Airways has attempted to adopt financial strategies which have encouraged high performance. How would you rate the performance of the organization in this regard?
12. Has Kenya Airways exploited all financial hedging opportunities as part of risk management strategy?

APPENDIX III: Kenya Airways Annual Financial Report (2011)

Kenya Airways Limited
Financial Statements
For the year ended 31 March 2011

Consolidated income statement

	Notes	Year ended 31 March	
		2011 KShs million	2010 KShs million
Revenue	5(b)	85,838	70,743
Direct costs	6(a)	(53,419)	(44,376)
Fleet ownership costs	6(b)	(9,622)	(9,102)
Overheads	6(c)	(16,980)	(15,426)
Operating profit		5,815	1,839
Finance costs	7	(1,379)	(1,485)
Finance income	7	172	372
Realised gains/(losses) on fuel derivatives	8	298	(3,771)
Fair value gains on fuel derivatives	8	30	6,140
Other gains/(losses)	9	264	(501)
Share of results of associate	18(c)	(188)	77
Profit before income tax	10	5,002	2,671
Income tax expense	11	(1,464)	(636)
Profit for the year	12	3,538	2,035
Attributable to:			
Equity holders of the company		3,535	2,034
Non-controlling interest		3	1
		3,538	2,035
Earnings per share attributable to the equity holders of the company			
- basic and diluted (KShs per share)	13	7.65	4.40

Source: Kenya Airways Annual Financial Report (2011).

APPENDIX IV: Kenya Airways Annual Financial Report (2010)

54 Kenya Airways Annual Report & Accounts

Consolidated Income Statement for the year ended 31 March 2010

	Notes	2010 KSh's'million	2009 KSh's'million
Turnover	4	70,743	71,829
Direct costs	5(a)	(44,376)	(47,792)
Fleet ownership costs	5(b)	(9,102)	(7,994)
GROSS PROFIT		17,265	16,043
Overheads	5(c)	(15,426)	(12,001)
Finance costs	6(a)	(1,485)	(1,594)
Finance income	6(b)	372	658
Realised losses on fuel derivatives	7(a)	(3,771)	(1,372)
Fair value gains/(losses) on fuel derivatives	7(b)	6,140	(7,532)
Other (losses)/gains	8	(501)	72
Share of results of associated company	17(c)	77	62
PROFIT/(LOSS) BEFORE TAXATION	9	2,671	(5,664)
TAXATION (CHARGE)/CREDIT	10(a)	(636)	1,581
PROFIT/(LOSS) FOR THE YEAR	11	2,035	(4,083)
PROFIT/(LOSS) ATTRIBUTABLE TO:			
Equity holders of the company		2,034	(4,083)
Non-controlling interest		1	-
		2,035	(4,083)
EARNINGS/(LOSS) PER SHARE (KSh) - Basic & diluted		4.40	(8.84)

Source: Kenya Airways Annual Financial Report (2010)

APPENDIX V: Kenya Airways Annual Financial Report (2009)

KENYA AIRWAYS LIMITED AND SUBSIDIARIES

CONSOLIDATED INCOME STATEMENT FOR THE YEAR ENDED 31 MARCH 2009

	Notes	2009 KShs'million	2008 KShs'million
TURNOVER	4	72,160	60,471
DIRECT COSTS	5(a)	(57,312)	(43,924)
GROSS PROFIT		14,848	16,547
OTHER INCOME		88	54
OVERHEADS	5(b)	(12,063)	(9,968)
SHARE OF RESULTS OF ASSOCIATED COMPANY	15(b)	62	65
FINANCE COSTS – NET	7	(1,066)	(1,185)
PROFIT BEFORE TAXATION		1,869	5,513
TAXATION CHARGE	8(a)	(604)	(1,644)
PROFIT FOR THE YEAR	9	1,265	3,869
		KShs	KShs
EARNINGS PER SHARE - BASIC AND DILUTED	10	2.74	8.37
DIVIDEND PER SHARE	11	1.75	1.75

Source: Kenya Airways Annual Financial Report (2009)